

AMENDMENTS TO THE CLAIMS:

Please amend Claims 1, 9, 12 and 13 as follows. Note that all the claims currently pending in this application, including those not presently amended, have been reproduced below for the Examiner's convenience.

1. (Currently Amended) A magnetic guiding apparatus for guiding a moving member along a length of a sliding member by attracting a target disposed along the length of the sliding member by electromagnets provided on the moving member, said apparatus comprising:

magnetic-flux detection means on the guided moving member ~~movable along the length of the sliding member~~, for detecting a magnetic flux along the length of the target during movement of the moving member along the length of the sliding member;

position measuring means for measuring a position of said magnetic-flux detection means on the guided moving member along the length of the sliding member;

detection means for detecting a position of the magnetic flux peak along the length of the target, based on output of said magnetic-flux detection means and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.

2. (Previously Presented) A magnetic guiding apparatus according to Claim 1, further comprising storing means for storing the magnetic flux in the target corresponding to the position measured by said position measuring means.

3. (Original) A magnetic guiding apparatus according to claim 1, wherein said magnetic-flux detection means is mounted on the moving member.

4. (Previously Presented) A magnetic guiding apparatus according to Claim 3, wherein demagnetization is performed by moving the electromagnets to the position of the magnetic flux and providing the electromagnets with a current signal by said demagnetization means.

5. (Original) A magnetic guiding apparatus according to claim 1, wherein at least one of the electromagnets is used as said magnetic-flux detection means.

6. (Original) A stage apparatus comprising: a magnetic guiding apparatus according to claim 1.

7. (Original) An exposure apparatus for positioning at least one of a substrate and an original by a stage apparatus according to claim 6.

8. (Original) A device manufacturing method comprising: a step of manufacturing devices by an exposure apparatus according to claim 7.

9. (Currently Amended) A stage apparatus comprising:
a target having a length extending along a direction;

a moving member guided by said target and movable along the length of said target;

electromagnets provided on said moving member and producing a force between said target and said electromagnets;

magnetic flux detection means provided on the moving member for detecting a magnetic flux during movement of the moving member along the length of said target;

position measuring means for measuring a position of the magnetic flux detecting means on said moving member along the length of the target; and

detection means for detecting a position of the magnetic flux peak along the length of the target, based on output of said magnetic-flux detection means and said position measuring means.

10. (Previously Presented) A stage apparatus according to Claim 9, further comprising demagnetization means for reducing the magnetic flux at the detected position of the magnetic flux peak.

11. (Original) A stage apparatus according to claim 10, further comprising a servo positioning system for positioning said moving member, wherein said servo positioning system is off during a reduction in the magnetic flux.

12. (Currently Amended) A demagnetization method for performing demagnetization of a magnetic guide apparatus, which has a moving member along a length of a target, comprising the steps of:

detecting a magnetic flux along the length of the target by a magnetic flux detecting means on the moving member movable during movement of the moving member along the length of the target;

measuring position of the magnetic flux detecting means along the length of the target;

detecting a position of magnetic flux peak along the length of the target based on measured position and detected magnetic flux; and

performing demagnetization at the detected position of the magnetic flux peak.

13. (Currently Amended) A magnetic guiding apparatus for guiding a moving member along a length of a beam by attracting a target disposed along the length of the beam by electromagnets provided on the moving member, said apparatus comprising:

a magnetic- flux detector on the guided moving member movable along the length of the beam, configured to detect a magnetic flux along the length of the target during movement of the moving member along the length of the target;

a position measuring unit configured to measure a position of said magnetic-flux detector along the length of the target;

detection means for detecting a position of a magnetic flux peak along the length of the target ,based on output of said magnetic-flux ~~detection means~~ detector and said position measuring means; and

demagnetization means for performing demagnetization at the detected position of the magnetic flux peak.